IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re reissue application of:

U. S. Patent No: **5,903,116**

Issued: **May 11, 1999**

Inventor(s): **Everett R. Geis, Brian W. Peticolas**

For: **Turbogenerator/Motor Controller**

Application for Broadening Reissue

PRELIMINARY AMENDMENT

Box Reissue
Commissioner for Patents
Washington, D.C. 20231

Sir:

Please enter the following preliminary amendment in the above referenced application for a broadening reissue of U.S. Patent No. 5,903,116, as follows.

In the Specification:

Please amend the ABSTRACT as follows:

A turbogenerator/motor controller with a microprocessor based inverter having multiple modes of operation. To start the turbine, the inverter [connects to and] supplies fixed current, variable voltage, variable frequency, AC power to the permanent magnet turbogenerator/motor, driving the permanent magnet turbogenerator/motor as a motor to accelerate the gas turbine. During this acceleration, spark and fuel are introduced in the correct sequence, and self-sustaining gas turbine operating conditions are reached. The inverter is then [disconnected from the permanent magnet

generator/motor,] reconfigured to a controlled 60 hertz mode, and then either supplies regulated 60 hertz three phase voltage to a stand alone load or phase locks to the utility, or to other like controllers, to operate as a supplement to the utility. In this mode of operation, the power for the inverter is derived from the permanent magnet generator/motor via high frequency rectifier bridges. The microprocessor monitors turbine conditions and controls fuel flow to the gas turbine combustor.

Please delete all three paragraphs under the heading SUMMARY OF THE INVENTION, and insert the following new text under the heading SUMMARY OF THE INVENTION:

In one aspect of the present invention, a turbine generator system is provided including a turbine engine, a motor/generator rotationally coupled to the turbine engine for generating AC power for a load, and a controller connected to the turbine engine for controlling fuel flow to the turbine engine. The controller includes microprocessor-controlled switched elements for inverting internal DC power to output AC power for the load, and is connected to the motor/generator for applying the output AC power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed.

In another aspect of the present invention, the controller is connected to the load for transferring AC power to the load and includes microprocessor-controlled switched elements for applying AC power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed.

In yet another aspect of the present invention, the controller is connected to the turbine engine and includes microprocessor-controlled switched elements for applying AC power to the motor/generator to start the turbine engine, and is also connected to the load for supplying output AC power to the load after the turbine engine has started.

The controller may include a pulse width modulated inverter that comprises the microprocessor-controlled switched elements, which may comprise integrated gate bipolar transistors. The inverter may further comprise at least one microprocessor-controlled switched element connected to the motor/generator for providing an artificial neutral pole.

The controller may further include control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine. The controller may also include control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

The controller may further include a DC bus connected to the microprocessor-controlled switched elements for transferring the internal DC power from the motor/generator to the microprocessor-controlled switched elements. The DC bus may also be connected to the motor/generator for receiving internal DC power from the motor/generator, and the microprocessor-controlled switched elements connected to the DC bus for inverting the internal DC power to output AC power for the load.

In another aspect of the present invention, a controller is provided for controlling a motor/generator driven by a turbine engine, the controller comprising a plurality of microprocessor-controlled switched elements connected to the motor/generator for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed, and a DC bus for transferring rectified DC power from the motor/generator to an inverter circuit to supply AC power to a load, the DC bus being connected to the microprocessor-controlled switched elements for providing DC power to the microprocessor-controlled switched elements.

In still another aspect of the present invention, a controller is provided for controlling a motor/generator driven by a turbine engine, the controller comprising a DC bus connected to the

motor/generator for receiving rectified DC power from the motor/generator, and a plurality of microprocessor-controlled switched elements connected to the DC bus for inverting DC power received from the DC bus to supply AC power to a load.

In yet another aspect of the present invention, a controller is provided for controlling a motor/generator driven by a turbine engine, the controller comprising a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator, and a plurality of microprocessor-controlled switched elements connected to the rectifier circuit for inverting DC power from the rectifier circuit to supply AC power to a load.

In another aspect of the present invention, a controller is provided for controlling a motor/generator driven by a turbine engine, the controller comprising a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator, the rectifier circuit being reconfigurable to rectify AC power from a power grid, and an inverter including a plurality of microprocessor-controlled switched elements connected to the rectifier circuit for inverting DC power from the rectifier circuit to supply AC power to the power grid, the inverter being reconfigurable to supply AC power to the motor/generator.

In another aspect of the present invention, a method is provided for controlling a system including a motor/generator rotationally coupled to a turbine engine, the method comprising connecting a controller to the motor/generator for applying power to the motor/generator at varying voltage and varying frequency to adjust the speed of the motor/generator, connecting the controller to the turbine engine to control fuel flow to the turbine engine, operating the controller to apply power to the motor/generator to accelerate the turbine engine to a predetermined speed, initiating combustion in the turbine engine at the predetermined speed, and operating the controller to apply power to the motor/generator to adjust the speed of the motor/generator after initiating combustion in the turbine engine.

Please amend the BRIEF DESCRIPTION OF THE DRAWINGS as follows:

FIG. 1 is a perspective view, partially cut away, of a permanent magnet turbogenerator/motor utilizing [the] a controller [of] in accordance with the present invention;

FIG. 2 is a functional block diagram of the interface between the permanent magnet turbogenerator/motor of FIG. 1 and [the] a controller [of] in accordance with the present invention;

FIG. 3 is a functional block diagram of [the] a permanent magnet turbogenerator/motor controller [of] in accordance with the present invention; and

FIG. 4 is a circuit diagram of [the] a PWM inverter [of the] that may be used with a permanent magnet turbogenerator/motor controller [of] in accordance with the present invention.

Please insert the following two paragraphs immediately after the heading DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS:

The turbogenerator/motor controller of the present invention is a microprocessor based inverter having multiple modes of operation. To start the turbine, the inverter connects to and supplies fixed current, variable voltage, variable frequency, AC power to the permanent magnet turbogenerator/motor, driving the permanent magnet turbogenerator/motor as a motor to accelerate the gas turbine. During this acceleration, spark and fuel are introduced in the correct sequence, and self-sustaining gas turbine operating conditions are reached.

At this point, the inverter is disconnected from the permanent magnet generator/motor, reconfigured to a controlled 60 hertz mode, and then either supplies regulated 60 hertz three phase voltage to a stand alone load or phase locks to the utility, or to other like controllers, to operate as a supplement

to the utility. In this mode of operation, the power for the inverter is derived from the permanent magnet generator/motor via high frequency rectifier bridges. The microprocessor monitors turbine conditions and controls fuel flow to the gas turbine combustor.

Please amend the DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS as follows:

A permanent magnet turbogenerator/motor 10 is illustrated in FIG. 1 as an example of a turbogenerator/motor [utilizing the] that may be utilized with a controller [of] in accordance with the present invention. [The] A permanent magnet turbogenerator/motor 10 generally [comprises] includes a permanent magnet generator 12, a power head 13, a combustor 14 and a recuperator (or heat exchanger) 15.

[The] A permanent magnet generator 12 generally includes a permanent magnet rotor or sleeve 16, having a permanent magnet disposed therein, rotatably supported within a stator 18 by a pair of spaced journal bearings. Radial stator cooling fins 25 are enclosed in an outer cylindrical sleeve 27 to form an annular air flow passage which cools the stator 18 and thereby preheats the air passing through on its way to the power head 13.

The power head 13 of the permanent magnet turbogenerator/motor 10 will typically include[s] compressor 30, turbine 31, and bearing rotor 36 through which the tie rod 29 passes. The compressor 30, having compressor impeller or wheel 32 which receives preheated air from the annular air flow passage in cylindrical sleeve 27 around the stator 18, is driven by the turbine 31 having turbine wheel 33 which receives heated exhaust gases from the combustor 14 supplied with air from recuperator 15. The compressor wheel 32 and turbine wheel 33 [are] may be rotatably supported by bearing shaft or rotor 36 which may have [having] radially extending bearing rotor thrust disk 37. The bearing rotor 36 [is] may be rotatably supported by a single journal bearing within the center bearing housing while the bearing rotor thrust disk 37 at the compressor end of the bearing rotor 36 [is] may be rotatably

supported by a bilateral thrust bearing. [The] A bearing rotor thrust disk 37 is usually adjacent to the thrust face at the compressor end of the center bearing housing while a bearing thrust plate is typically disposed on the opposite side of the bearing rotor thrust disk 37 relative to the center housing thrust face.

The two IGBTs 74 and 78 in IGBT channel 70 function in the generate mode to form a constant duty fifty percent duty cycle divider to maintain exactly half bus voltage at the center tap at all times. That center tap point forms the neutral for the AC output. The neutral is not required for generator starting but is required for utility interface. The IGBT channels 71, 72, and 73 form a [classic] six transistor PWM inverter.

The reconfiguration or conversion of the PWM inverter 49 to be able to operate as a current source synchronous with the utility grid [is] may be accomplished by first stopping the PWM inverter 49. The AC output or the grid connect point is monitored with a separate set of logic monitoring to bring the PWM inverter 49 up in a synchronized fashion. The generator contactor 53 functions to close and connect only when the PWM inverter 49 needs to power the permanent magnet turbogenerator/motor 10 which is during the start operation and during the cool down operation. The output contactor 52 is only enabled to connect the PWM inverter 49 to the grid once the PWM inverter 49 has synchronized with grid voltage.

The implementation of the control power supply 56 first drops the control power supply 56 down to a 24 volt regulated section to allow an interface with a battery or other control power device. The control power supply 56 provides the [conventional] logic voltages to both the IGBT gate drives 58 and control logic 57. The IGBT gate drives 58 have two isolated low voltage sources to provide power to each of the two individual IGBT drives and the interface to the IGBT transistors is via a commercially packaged chip.

In the Claims:

Please amend claim 21 as follows:

21. A controller for a permanent magnet turbogenerator/motor having a gas turbine engine and a permanent magnet generator/motor, comprising:

a pulse width modulated inverter operably associated with said permanent magnet turbogenerator/motor, said pulse width modulated inverter having a plurality of solid state switching device channels;

a first contactor operably associated with said pulse width modulated inverter;

a second contactor [operable] <u>operably</u> associated with said [the] permanent magnet turbogenerator/motor;

means to provide electrical power to said pulse width modulated inverter through said first contactor when closed to drive said permanent magnet turbogenerator/motor as a motor through said second contactor when closed to accelerate said gas turbine engine of said permanent magnet turbogenerator/motor;

means to provide spark and fuel to said gas turbine engine of said permanent magnet turbogenerator/motor during this acceleration to achieve self sustaining operation of said gas turbine engine;

means to open said first and second contactors to disconnect the electrical power from said pulse width modulated inverter once self sustaining operation is achieved;

a rectifier bridge operable associated with said pulse width modulated inverter and said permanent magnet turbogenerator/motor;

a third contactor operably associated with said pulse width modulated inverter;

means to reconnect said pulse width modulated inverter to said permanent magnet turbogenerator/motor through said rectifier bridge to reconfigure said pulse width modulated inverter; and

means to connect said reconfigured pulse width modulated inverter to supply utility frequency voltage to a load through said third contactor when closed.

Please add new claims 26-231:

26. A method of controlling a turbogenerator/motor, comprising:

providing electrical power to the turbogenerator/motor through an inverter to start the turbogenerator/motor to achieve self sustaining operation of the turbogenerator/motor; and

reconfiguring the inverter to supply voltage from the turbogenerator/motor when self sustaining operation of the turbogenerator/motor is achieved.

27. The method of claim 26, wherein reconfiguring the inverter comprises:

reconfiguring the inverter to supply utility frequency voltage from the turbogenerator/motor.

28. The method of claim 26, wherein reconfiguring the inverter comprises:

reconfiguring an inverter including four solid state switching device channels wherein three of the four solid state switching device channels are reconfigured to supply utility frequency voltage and the fourth solid state switching device channel is switched at a fifty percent duty cycle to create an artificial neutral.

29. The method of claim 26, wherein the turbogenerator/motor comprises:

a permanent magnet turbogenerator/motor.

30. The method of claim 28, wherein the inverter comprises:

a pulse width modulated inverter.

31. The method of claim 26, wherein reconfiguring the inverter comprises:

disconnecting the electrical power from the inverter when self sustaining operation of the turbogenerator/motor is achieved.

32. A method of controlling a turbogenerator/motor comprising the steps of:

providing electrical power to the turbogenerator/motor through an inverter to drive the turbogenerator/motor as a motor to accelerate the turbine engine of the turbogenerator/motor;

providing spark and fuel to the turbine engine of the turbogenerator/motor during acceleration to achieve self sustaining operation of the turbine engine; and

reconnecting the inverter to the turbogenerator/motor through a rectifier to reconfigure the inverter to supply utility frequency voltage when self sustaining operation is achieved.

33. The method of claim 32, wherein providing electrical power through an inverter comprises:

providing electrical power through an inverter including four solid state switching device channels; and

reconnecting the inverter comprises:

reconfiguring three of the four solid state switching device channels to supply utility frequency voltage; and

switching the fourth solid state switching device channel at a fifty percent duty cycle to create an artificial neutral.

34. The method of claim 32, wherein the turbogenerator/motor comprises:

a permanent magnet turbogenerator/motor.

35. The method of claim 34, wherein the inverter comprises:

a pulse width modulated inverter.

36. The method of claim 32, wherein reconnecting the inverter comprises:

disconnecting the electrical power from the inverter when self sustaining operation is achieved.

37. A method of controlling a turbogenerator/motor comprising:

providing electrical power to the turbogenerator/motor through a first contactor and an inverter to drive the turbogenerator/motor as a motor through a second contactor to accelerate the turbine engine of the turbogenerator/motor;

providing spark and fuel to the turbine engine of the turbogenerator/motor during acceleration to achieve self sustaining operation of the turbine engine; and

reconnecting the inverter to the turbogenerator/motor through a rectifier to reconfigure the inverter to supply utility frequency voltage when self sustaining operation is achieved.

38. The method of claim 37, wherein providing electrical power through an inverter comprises:

providing electrical power through an inverter including four solid state switching device channels; and

reconnecting the inverter comprises:

reconfiguring three of the four solid state switching device channels to supply utility frequency voltage; and

switching the fourth solid state switching device channel at a fifty percent duty cycle to create an artificial neutral.

39. The method of claim 37, further comprising:

connecting the reconfigured inverter to a load by closing a third contactor.

40. A method of controlling a turbogenerator/motor comprising the steps of:

providing electrical power to the turbogenerator/motor through a first contactor and a multiple solid state

switching device channel inverter to drive the turbogenerator/motor as a motor through a second contactor to accelerate the turbine engine of the turbogenerator/motor;

providing spark and fuel to the turbine engine of the turbogenerator/motor during acceleration to achieve self sustaining operation of the gas turbine engine;

reconnecting the inverter to the turbogenerator/motor through a rectifier to reconfigure the inverter when self sustaining operation is achieved; and

connecting the reconfigured inverter to utility power by closing a third contactor.

41. The method of claim 40, wherein providing electrical power through a multiple solid state switching device channel inverter comprises:

providing electrical power through an inverter including four solid state switching device channels; and

reconnecting the inverter comprises:

reconfiguring three of the four solid state switching device channels to supply utility frequency voltage; and

switching the fourth solid state switching device channel at a fifty percent duty cycle to create an artificial neutral.

42. The method of claim 41, wherein the four solid state switching device channels comprise:

IGBT channels.

43. The method of claim 40, wherein the rectifier comprises:

a high frequency three phase rectifier bridge including three diode channels.

44. The method of claim 43, wherein each of said three diode channels comprise:

two diodes.

45. A controller for a turbogenerator/motor, comprising:

an inverter operably associated with said turbogenerator/motor;

means to provide electrical power to said turbogenerator/motor through said inverter to start said turbogenerator/motor to achieve self sustaining operation of said turbogenerator/motor; and

means to reconfigure said pulse width modulated inverter to supply voltage from said permanent magnet turbogenerator/motor.

46. The controller of claim 45, wherein said inverter comprises:

a plurality of solid state switching device channels.

47. A controller for a turbogenerator/motor, comprising:

an inverter operably associated with said turbogenerator/motor, said inverter having four solid state switching device channels;

means to provide electrical power to said turbogenerator/motor through said inverter to start said turbogenerator/motor to achieve self sustaining operation; and

means to reconfigure said inverter to supply voltage from said turbogenerator/motor when self sustaining operation of said turbogenerator/motor is achieved, including means to reconfigure three of the four solid state switching device channels to supply utility frequency voltage and means to switch the fourth solid state switching device channel at a fifty percent duty cycle to create an artificial neutral.

48. The controller of claim 47, wherein said four solid state switching device channels comprise:

IGBT channels.

49. The controller of claim 47, further comprising:

means to disconnect the electrical power from said inverter when self sustaining operation of said turbogenerator/motor is achieved.

50. The controller of claim 47, wherein the turbogenerator/motor comprises:

a permanent magnet turbogenerator/motor.

51. The controller of claim 50, wherein the inverter comprises:

a pulse width modulated inverter.

52. A controller for a turbogenerator/motor having a turbine engine, comprising:

an inverter operably associated with said turbogenerator/motor;

means to provide electrical power to said turbogenerator/motor through said inverter to drive said turbogenerator/motor as a motor to accelerate said turbine engine of said turbogenerator/motor;

means to provide spark and fuel to said turbine engine of said turbogenerator/motor during acceleration to achieve self sustaining operation of said turbine engine;

a rectifier bridge operably associated with said inverter and said turbogenerator/motor; and

means to reconnect said inverter to said turbogenerator/motor through said rectifier bridge to reconfigure said inverter to supply utility frequency voltage.

53. The controller of claim 19, wherein said inverter comprises:

four solid state switching device channels; and

said means to reconnect said inverter comprise:

means to reconfigure three of the four solid state switching device channels to supply utility frequency voltage; and

means to switch the fourth solid state switching device channel at a fifty percent duty cycle to create

an artificial neutral.

54. The controller of claim 19, further comprising:

means to disconnect the electrical power from said inverter and said turbogenerator/motor when self sustaining operation of said turbine engine.

55. The controller of claim 52, wherein the turbogenerator/motor comprises:

a permanent magnet turbogenerator/motor.

56. The controller of claim 55, wherein the inverter comprises:

a pulse width modulated inverter.

57. A controller for a turbogenerator/motor having a turbine engine and a generator/motor, comprising:

an inverter operably associated with said turbogenerator/motor and having a plurality of solid state switching device channels;

a first contactor operably associated with said inverter;

a second contactor operably associated with said turbogenerator/motor;

means to provide electrical power to said inverter through said first contactor to drive said turbogenerator/motor as a motor through said second contactor to accelerate said turbine engine of said turbogenerator/motor;

means to provide spark and fuel to said turbine engine of said turbogenerator/motor during acceleration to achieve self sustaining operation of said turbine engine;

a rectifier bridge operably associated with said inverter and said turbogenerator/motor;

a third contactor operably associated with said inverter;

means to reconnect said inverter to said turbogenerator/motor through said rectifier bridge to reconfigure said inverter when self sustaining operation is achieved; and

means to connect said reconfigured inverter to supply utility frequency voltage to a load through said third contactor.

58. The controller of claim 57, wherein said inverter comprises:

four solid state switching device channels; and

said means to reconnect said inverter comprise:

means to reconfigure three of the four solid state switching device channels to supply utility frequency voltage; and

means to switch the fourth solid state switching device channel at a fifty percent duty cycle to create an artificial neutral.

59. The controller of claim 58, wherein the four solid state switching device channels comprise:

IGBT channels.

60. The controller of claim 57, wherein said rectifier bridge comprises:

a three phase rectifier including three diode channels.

61. The controller of claim 60, wherein each of said three diode channels comprises:

two diodes.

62. The controller of claim 57, further comprising:

means to open said first and second contactors to disconnect the electrical power from said inverter when self sustaining operation is achieved.

63. The controller of claim 57, wherein the turbogenerator/motor comprises:

a permanent magnet turbogenerator/motor.

64. The controller of claim 59, wherein the inverter comprises:

a pulse width modulated inverter.

65. A turbine generator system, comprising:

a turbine engine;

a motor/generator rotationally coupled to the turbine engine for generating AC power for a load; and

a controller connected to the turbine engine for controlling fuel flow to the turbine engine, the controller including microprocessor-controlled switched elements for inverting internal DC power to output AC power for the load, the controller connected to the motor/generator for applying the output AC power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed.

66. The system of claim 65, wherein the controller comprises:

a pulse width modulated inverter comprising the microprocessor-controlled switched elements.

67. The system of claim 66, wherein the microprocessor-controlled switched elements comprise:

integrated gate bipolar transistors.

68. The system of claim 66, wherein the inverter further comprises:

at least one microprocessor-controlled switched element connected to the motor/generator for providing an artificial neutral pole.

69. The system of claim 66, wherein the inverter further comprises:

a microprocessor connected to the switched elements for controlling the switched elements.

70. The system of claim 65, further comprising:

a source of DC power connected to the controller to supply operating power to the controller.

71. The system of claim 65, wherein the controller comprises:

a rectifier circuit including a diode rectifier bridge for rectifying AC power generated by the motor/generator to the internal DC power.

72. The system of claim 65, further comprising:

a DC bus connected to the microprocessor-controlled switched elements for transferring the internal DC power from the motor/generator to the microprocessor-controlled switched elements.

73. The system of claim 65, further comprising:

a DC bus connected to the motor/generator for receiving internal DC power from the motor/generator, the microprocessor-controlled switched elements connected to the DC bus for inverting the internal DC power to the output AC power for the load.

74. The system of claim 65, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator to provide the internal DC power.

75. The system of claim 65, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator to provide the internal DC power, the rectifier circuit reconfigurable to rectify AC power from a power grid.

76. The system of claim 65, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

77. The system of claim 65, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

78. The system of claim 65, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

79. The system of claim 72, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator, the rectifier circuit connected to the DC bus to provide the internal DC power to the DC bus.

80. The system of claim 73, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator, the rectifier circuit connected to the DC bus to provide the internal DC power to the DC bus.

81. The system of claim 72, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator, the rectifier circuit connected to the DC bus to provide the internal DC power to the DC bus, the rectifier circuit reconfigurable to rectify AC power from a power grid.

82. The system of claim 73, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator, the rectifier circuit connected to the DC bus to provide the internal DC power to the DC bus, the rectifier circuit reconfigurable to rectify AC power from a power grid.

83. The system of claim 72, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

84. The system of claim 73, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying

frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

85. The system of claim 79, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

86. The system of claim 80, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

87. The system of claim 81, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

88. The system of claim 82, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

89. The system of claim 72, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

90. The system of claim 73, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

91. The system of claim 74, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

92. The system of claim 75, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

93. The system of claim 76, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

94. The system of claim 72, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

95. The system of claim 73, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

96. The system of claim 74, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

97. The system of claim 75, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

98. The system of claim 76, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

99. The system of claim 79, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

100. The system of claim 80, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

101. The system of claim 81, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

102. The system of claim 82, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

103. The system of claim 79, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

104. The system of claim 80, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

105. The system of claim 81, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

106. The system of claim 82, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

107. The system of claim 78, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

108. The system of claim 77, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

109. A turbine generator system, comprising:

a turbine engine;

a motor/generator rotationally coupled to the turbine engine for generating AC power for a load; and

a controller connected to the turbine engine for controlling fuel flow to the turbine engine, the controller connected to the load for transferring AC power to the load, the controller including microprocessor-controlled switched elements for applying AC power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed.

110. The system of claim 109, wherein the controller comprises:

a pulse width modulated inverter comprising the microprocessor-controlled switched elements.

111. The system of claim 110, wherein the microprocessor-controlled switched elements comprise:

integrated gate bipolar transistors.

112. The system of claim 110, wherein the inverter further comprises:

at least one microprocessor-controlled switched element connected to the motor/generator for providing an artificial neutral pole.

113. The system of claim 110, wherein the inverter further comprises:

a microprocessor to control the switched elements.

114. The system of claim 109, further comprising:

a source of DC power connected to the controller to supply operating power to the controller.

115. The system of claim 109, wherein the controller comprises:

a rectifier circuit including a diode rectifier bridge for rectifying AC power generated by the motor/generator to the internal DC power.

116. The system of claim 109, further comprising:

a DC bus connected to the microprocessor-controlled switched elements for transferring the internal DC power from the motor/generator to the microprocessor-controlled switched elements.

117. The system of claim 109, further comprising:

a DC bus connected to the motor/generator for receiving internal DC power from the motor/generator, the microprocessor-controlled switched elements connected to the DC bus for inverting the internal DC power to the output AC power for the load.

118. The system of claim 109, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator to provide the internal DC power.

119. The system of claim 109, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator to provide the internal DC power, the rectifier circuit reconfigurable to rectify AC power from a power grid.

120. The system of claim 109, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

121. The system of claim 109, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

122. The system of claim 109, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

123. The system of claim 116, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator, the rectifier circuit connected to the DC bus to provide the internal DC power to the DC bus.

124. The system of claim 117, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator, the rectifier circuit connected to the DC bus to provide the internal DC power to the DC bus.

125. The system of claim 116, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator, the rectifier circuit connected to the DC bus to provide the internal DC power to the DC bus, the rectifier circuit reconfigurable to rectify AC power from a power grid.

126. The system of claim 117, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator, the rectifier circuit connected to the DC bus to provide the internal DC power to the DC bus, the rectifier circuit reconfigurable to rectify AC power from a power grid.

127. The system of claim 116, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

128. The system of claim 117, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

129. The system of claim 123, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

130. The system of claim 124, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

131. The system of claim 125, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

132. The system of claim 126, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

133. The system of claim 116, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

134. The system of claim 117, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

135. The system of claim 118, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

136. The system of claim 119, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

137. The system of claim 120, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

138. The system of claim 116, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

139. The system of claim 117, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

140. The system of claim 118, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

141. The system of claim 119, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

142. The system of claim 120, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

143. The system of claim 123, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

144. The system of claim 124, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

145. The system of claim 125, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

146. The system of claim 126, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

147. The system of claim 123, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

148. The system of claim 124, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

149. The system of claim 125, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

150. The system of claim 126, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

151. The system of claim 122, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

152. The system of claim 121, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

153. A turbine generator system, comprising:

a turbine engine;

a motor/generator rotationally coupled to the turbine engine for generating AC power for a load; and

a controller connected to the turbine engine for controlling fuel flow to the turbine engine, the controller including microprocessor-controlled switched elements for applying AC power to the motor/generator to start the turbine engine, the controller connected to the load for supplying output AC power to the load after the turbine engine has started.

154. The system of claim 153, wherein the controller further comprises:

a microprocessor connected to the switched elements for controlling the switched elements to apply the AC power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed after the turbine engine has started.

155. The system of claim 154, wherein the controller comprises:

a pulse width modulated inverter comprising the microprocessor-controlled switched elements.

156. The system of claim 155, wherein the microprocessor-controlled switched elements comprise:

integrated gate bipolar transistors.

157. The system of claim 155, wherein the inverter further comprises:

at least one microprocessor-controlled switched element connected to the motor/generator for providing an artificial neutral pole.

158. The system of claim 154, further comprising:

a source of DC power connected to the controller to supply operating power to the controller.

159. The system of claim 154, wherein the controller comprises:

a rectifier circuit including a diode rectifier bridge for rectifying AC power generated by the motor/generator to the internal DC power.

160. The system of claim 154, further comprising:

a DC bus connected to the microprocessor-controlled switched elements for transferring the internal DC power from the motor/generator to the microprocessor-controlled switched elements.

161. The system of claim 154, further comprising:

a DC bus connected to the motor/generator for receiving internal DC power from the motor/generator, the microprocessor-controlled switched elements connected to the DC bus for inverting the internal DC power to the output AC power for the load.

162. The system of claim 154, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator to provide the internal DC power.

163. The system of claim 154, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator to provide the internal DC power, the rectifier circuit reconfigurable to rectify AC power from a power grid.

164. The system of claim 154, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

165. The system of claim 154, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

166. The system of claim 154, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

167. A controller for controlling a motor/generator driven by a turbine engine, comprising:

a plurality of microprocessor-controlled switched elements connected to the motor/generator for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed; and

a DC bus for transferring rectified DC power from the motor/generator to an inverter circuit to supply AC power to a load, the DC bus connected to the microprocessor-controlled switched elements for providing DC power to the microprocessor-controlled switched elements.

168. The controller of claim 167, further comprising:

the inverter circuit.

169. The controller of claim 168, wherein the inverter circuit further comprises:

a pulse width modulated inverter comprising the microprocessor-controlled switched elements.

170. The controller of claim 169, wherein the microprocessor-controlled switched elements comprise:

integrated gate bipolar transistors.

171. The controller of claim 169, wherein the inverter further comprises:

at least one microprocessor-controlled switched element connected to the motor/generator for providing an artificial neutral pole.

172. The controller of claim 167, further comprising:

a source of DC power connected to the controller to supply operating power to the controller.

173. The controller of claim 167, wherein the controller comprises:

a rectifier circuit including a diode rectifier bridge for rectifying AC power generated by the motor/generator to the internal DC power.

174. The controller of claim 167, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator to provide the internal DC power.

175. The controller of claim 167, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator to provide the internal DC power, the rectifier circuit reconfigurable to rectify AC power from a power grid.

176. The controller of claim 167, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

177. The controller of claim 167, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

178. The controller of claim 167, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

179. A controller for controlling a motor/generator driven by a turbine engine, comprising:

a DC bus connected to the motor/generator for receiving rectified DC power from the motor/generator; and

a plurality of microprocessor-controlled switched elements connected to the DC bus for inverting DC power received from the DC bus to supply AC power to a load.

180. The controller of claim 179, further comprising:

a microprocessor connected to the switched elements for controlling the switched elements to apply the AC power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed.

181. The controller of claim 179, further comprising:

a pulse width modulated inverter comprising the microprocessor-controlled switched elements.

182. The controller of claim 181, wherein the microprocessor-controlled switched elements comprise:

integrated gate bipolar transistors.

183. The controller of claim 181, wherein the inverter further comprises:

at least one microprocessor-controlled switched element connected to the motor/generator for providing an artificial neutral pole.

184. The controller of claim 179, further comprising:

a source of DC power connected to the controller to supply operating power to the controller.

185. The controller of claim 179, wherein the controller comprises:

a rectifier circuit including a diode rectifier bridge for rectifying AC power generated by the motor/generator to the internal DC power.

186. The controller of claim 179, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator to provide the internal DC power.

187. The controller of claim 179, further comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator to provide the internal DC power, the rectifier circuit reconfigurable to rectify AC power from a power grid.

188. The controller of claim 179, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

189. The controller of claim 179, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

190. The controller of claim 179, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

191. A controller for controlling a motor/generator driven by a turbine engine, comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator; and

a plurality of microprocessor-controlled switched elements connected to the rectifier circuit for inverting DC power from the rectifier circuit to supply AC power to a load.

192. The system of claim 191, wherein the controller comprises:

a pulse width modulated inverter comprising the microprocessor-controlled switched elements.

193. The system of claim 192, wherein the microprocessor-controlled switched elements comprise:

integrated gate bipolar transistors.

194. The system of claim 192, wherein the inverter further comprises:

at least one microprocessor-controlled switched element connected to the motor/generator for providing an artificial neutral pole.

195. The system of claim 192, wherein the controller further comprises:

a microprocessor connected to the switched elements for controlling the switched elements.

196. The system of claim 191, further comprising:

a source of DC power connected to the controller to supply operating power to the controller.

197. The system of claim 191, wherein the rectifier circuit comprises:

a diode rectifier bridge.

198. The system of claim 191, further comprising:

a DC bus connected to the microprocessor-controlled switched elements for transferring the DC power from the rectifier circuit to the microprocessor-controlled switched elements.

199. The system of claim 191, further comprising:

a DC bus connected to the motor/generator for receiving internal DC power from the motor/generator, the microprocessor-controlled switched elements connected to the DC bus for inverting the internal DC power to supply the AC power to the load.

200. The system of claim 191, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

201. The system of claim 191, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

202. The system of claim 191, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

203. A controller for controlling a motor/generator driven by a turbine engine, comprising:

a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator, the rectifier circuit reconfigurable to rectify AC power from a power grid; and

an inverter including a plurality of microprocessor-controlled switched elements connected to the rectifier circuit for inverting DC power from the rectifier circuit to supply AC power to the power grid, the inverter reconfigurable to supply AC power to the motor/generator.

204. The system of claim 203, wherein the inverter comprises:

a pulse width modulated inverter comprising the microprocessor-controlled switched elements.

205. The system of claim 204, wherein the microprocessor-controlled switched elements comprise:

integrated gate bipolar transistors.

206. The system of claim 204, wherein the inverter further comprises:

at least one microprocessor-controlled switched element connected to the motor/generator for providing an artificial neutral pole.

207. The system of claim 204, wherein the controller further comprises:

a microprocessor connected to the switched elements for controlling the switched elements.

208. The system of claim 203, further comprising:

a source of DC power connected to the controller to supply operating power to the controller.

209. The system of claim 203, wherein the rectifier circuit comprises:

a diode rectifier bridge.

210. The system of claim 203, further comprising:

a DC bus connected to the microprocessor-controlled switched elements for transferring the DC power from the rectifier circuit to the microprocessor-controlled switched elements.

211. The system of claim 203, further comprising:

a DC bus connected to the motor/generator for the DC power from the motor/generator, the microprocessor-controlled switched elements connected to the DC bus for inverting the internal DC power to supply the AC power to the load.

212. The system of claim 203, wherein the controller comprises:

microprocessor-controlled switched elements for applying power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

213. The system of claim 203, wherein the controller comprises:

control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

214. The system of claim 203, wherein the controller comprises:

control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

215. A method of controlling a system including a motor/generator rotationally coupled to a turbine engine, comprising:

connecting a controller to the motor/generator for applying power to the motor/generator at varying voltage and varying frequency to adjust the speed of the motor/generator;

connecting the controller to the turbine engine to control fuel flow to the turbine engine;

operating the controller to apply power to the motor/generator to accelerate the turbine engine to a predetermined speed;

initiating combustion in the turbine engine at the predetermined speed; and

operating the controller to apply power to the motor/generator to adjust the speed of the motor/generator after initiating combustion in the turbine engine.

216. The method of claim 215, wherein connecting a controller comprises:

connecting a controller including microprocessor-controlled switched elements for inverting internal DC power to output AC power for a load.

217. The method of claim 216, wherein operating the controller comprises:

operating the controller to apply the output AC power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed.

218. The method of claim 216, wherein connecting the controller comprises:

connecting a controller including a pulse width modulated inverter comprising the microprocessor-controlled switched elements.

219. The method of claim 218, wherein the microprocessor-controlled switched elements comprise:

integrated gate bipolar transistors.

220. The method of claim 218, wherein the inverter further comprises:

at least one microprocessor-controlled switched element connected to the motor/generator for providing an artificial neutral pole.

221. The method of claim 218, wherein the inverter further comprises:

a microprocessor connected to the switched elements for controlling the switched elements.

222. The method of claim 217, further comprising:

connecting a source of DC power to the controller to supply operating power to the controller.

223. The method of claim 217, wherein connecting the controller comprises:

connecting a controller including a rectifier circuit for rectifying AC power generated by the motor/generator to the internal DC power.

224. The method of claim 223, wherein connecting the controller including a rectifier circuit comprises:

connecting the controller including a rectifier circuit having a diode rectifier bridge.

225. The method of claim 217, further comprising:

a DC bus connected to the microprocessor-controlled switched elements for transferring the internal DC power from the motor/generator to the microprocessor-controlled switched elements.

226. The method of claim 217, wherein connecting the controller further comprises:

connecting a controller including a DC bus connected to the motor/generator for receiving internal DC power from the motor/generator;

connecting the microprocessor-controlled switched elements to the DC bus for inverting the internal DC power to the output AC power for the load.

227. The method of claim 217, wherein connecting the controller further comprises:

connecting a controller including a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator to provide the internal DC power.

228. The method of claim 217, wherein connecting the controller further comprises:

connecting a controller including a rectifier circuit connected to the motor/generator for rectifying AC power from the motor/generator to provide the internal DC power, the rectifier circuit reconfigurable to rectify AC power from a power grid.

229. The method of claim 217, wherein operating the controller comprises:

operating the controller to apply power to the motor/generator at varying voltage and varying frequency to adjust the motor/generator speed to a pre-selected speed to produce a pre-selected amount of AC power.

230. The method of claim 217, wherein connecting the controller comprises:

connecting a controller including control logic connected to the turbine engine and responsive to a turbine exhaust temperature for controlling fuel flow to the turbine engine.

231. The method of claim 217, wherein connecting the controller comprises:

connecting a controller including control logic connected to the switched elements to phase lock the output AC power to AC power supplied by at least one other controller.

Prompt and favorable consideration of this Amendment is respectully requested.

Respectfully submitted,

Robert Popa, Registration No. 43,010

Irell & Manella, LLP
1800 Avenue of the Stars, Suite 900
Los Angeles, California 90067
Telephone: (310) 203-7535
Facsimile: (310) 203-7199
email: rpopa@irell.com